

# Pre-injector Upgrade Updates (29 Apr – 12 May 2010)

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12 May 2010

# RFQ PO is DONE! (05 May 2010)

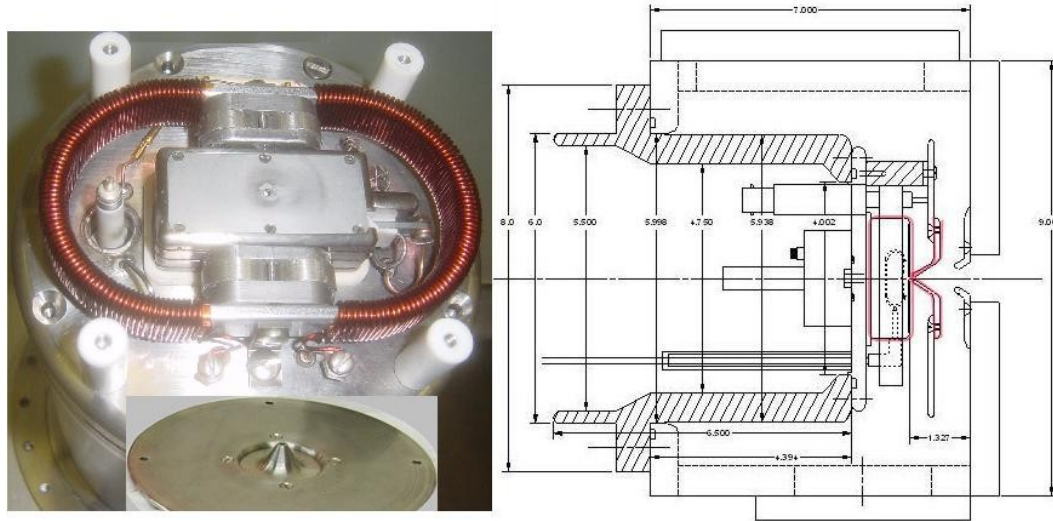
- Approximate time line:
  - Started Trace simulations in Oct-Nov 2008
  - LBNL RFQ quote in July-Aug 2009
  - Swenson quote in Sep 2009
  - Schempp quote in Nov 2009
  - First “proposal” which got the attention of Steve Holmes: PAC2009 (Apr 2009)
  - First meeting with management with official proposal: Sep 2009
  - RFQ spec for vendors: Jan 2010
  - Approval with MONEY: Feb 2010
  - Purchasing: Mar 2010
  - Sole source PO done: 05 May 2010

# Budget

Element	Qty	Unit Cost	Total	Notes	POWER SUPPLIES			LABOR			
					Power	Unit Cost	Total	Qty	Months	Monthly Rate	Total
Solenoid	3	45,000	135,000	BNL style: 2335 G, 241 mm	500Amp	5,000	15,000				
Quad	4	45,000	180,000	40 T/m, 1.5 inch gap, 45 mm long	40Amp	4,000	16,000				
Dipole trims	5	5,000	25,000	3inch gap, 2 inch length	20Amp	2,500	12,500				
Vacuum Valve	3	12,000	36,000	4 inch							
RFQ Test Stand	1	6,000	6,000	4 inch, Will reuse present stop							
Wire Scanner	1	5,000	5,000	Reuse							
Toroid	3	10,000	30,000	3 inch							
Buncher Cav	1	50,000	50,000	1.6 inch gap, 9 inches, 48KV	Reuse						
RFQ	1	295,000	295,000	1 meter, 200 MhZ, ~100Kwatt	Reuse						
Eisnel Lens	1	15,000	15,000	2 inches long, 2 inch gap	Chop style		24,000				
Misc V Hardware/RFQ End Plate	1	24,000	24,000	Beam pipe/flange reuse			20,000				
Engineer				Stands, Vacuum, Kicker, Deb				1	2.0	11,432	22,864
Physics				Simulations				1	2.0	12,546	25,092
CAD Drawings				Stands, Vacuum, Kicker, Deb				1	1.0	7,017	7,017
Mechanical Technician								2	3.0	6,822	40,932
Travel/Vendor/Reviews			8,000								
Subtotals			809,000				87,500				95,905
Power Supplies			87,500								
M&S Total			896,500								
SWF Total			95,905								
Grand Total			992,405								
SAY...			990,000								

FUNDING STREAM:	M&S	SWF	TOTAL
FY2010	500,000	30,750	530,750
FY2011	297,500	30,750	328,250
FY2012		41,000	41,000
Totals	797,500	102,500	900,000

# Source Status



Device	Status	Comments
Source	> 40mA extracted (?). Pulse width 100us. 32 kV extraction voltage.	Some beam extracted. Einzel lens not strong enough to focus
Pulser	Pulser PS sparking (32kV)	Rebuild using BNL design

# Insufficient Einzel Lens focusing for 100mA Beam

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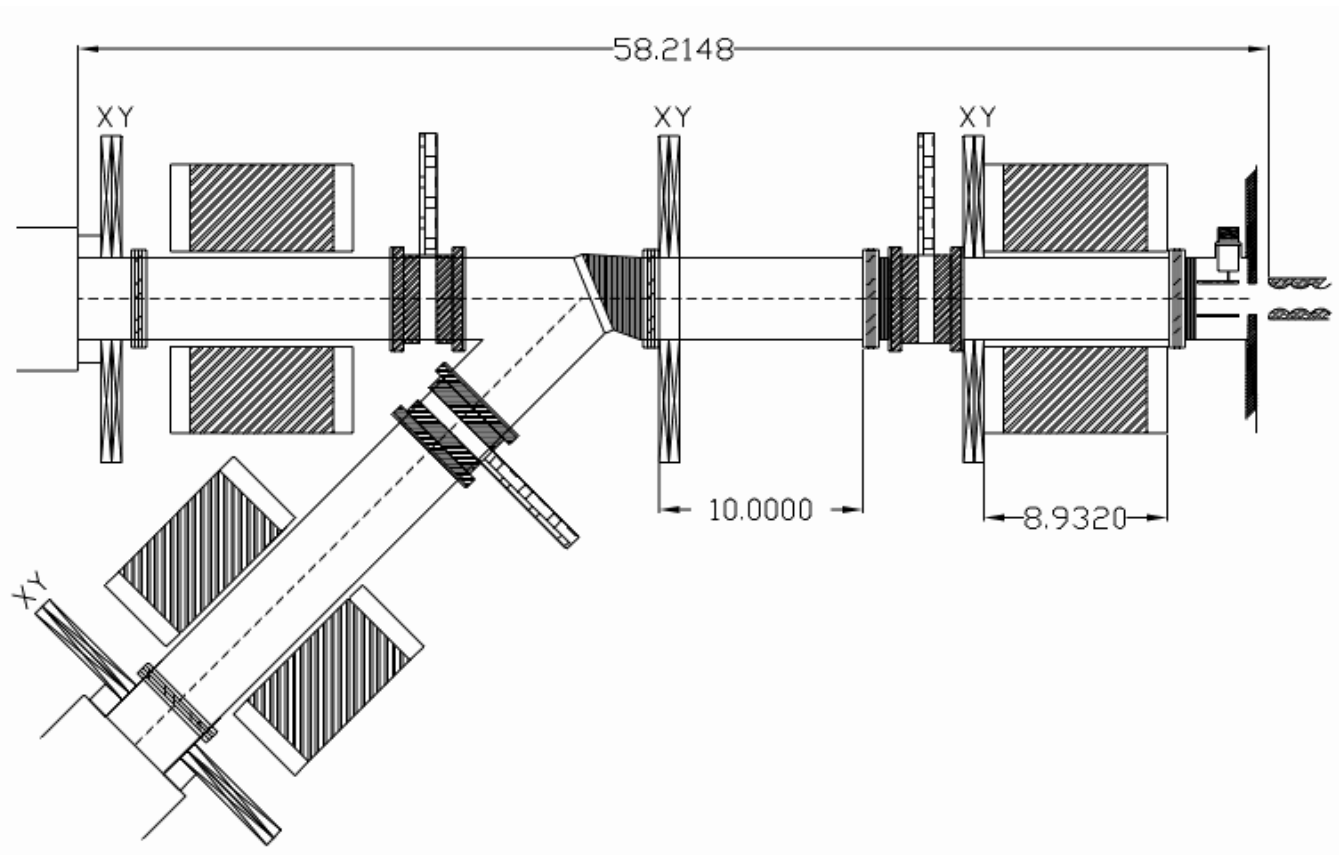
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# LEBT Status



Power for solenoids

Off the shelf supplies (500A)

Correctors Bdl=186.5 gauss inches

Design needed

Einzel Lens

Beam shot at it at >35kV. No sparking

Pulser for Einzel Waiting for spec sheet.

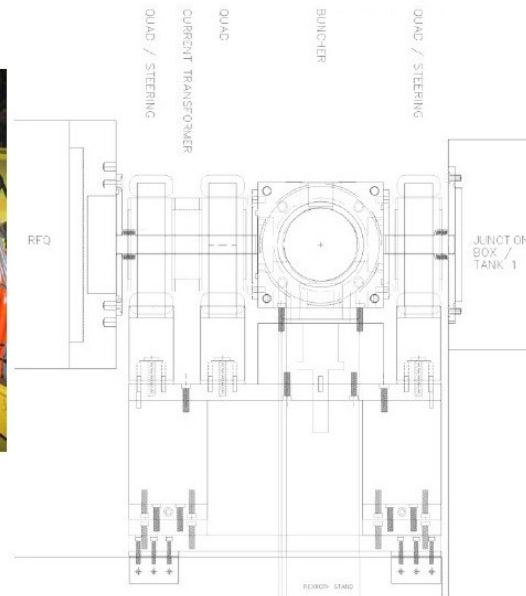
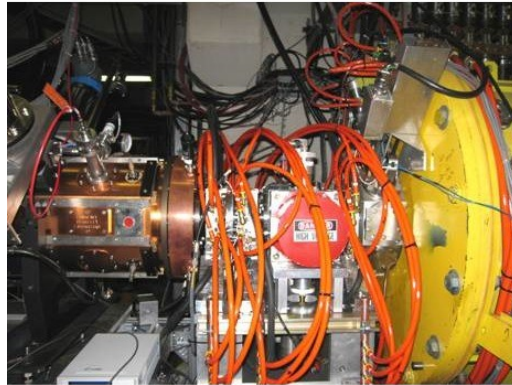
Behlke switch \$11.5k.

Solenoids

3D drawing done. 2D will take another month

Need to discuss mounting

# MEBT Status



Device	Status	Comments
Quads	Have laminations vendor. Simulations being checked at TD	\$30 to 40\$k per magnet
Buncher	Buying from Japan with BNL	Maybe
Power for quads	Must have specs ok from (TD)	Use linac quad supplies?
Power for buncher		Use present buncher supply in the line.

# RFQ Status

- PS for RFQ is at ANL.
  - Bill has looked at it. Looks good. Paperwork done to bring it here.
- Source test area will be cleared to become RFQ test area.
- PO is DONE! (05 May 2010)



# Test Stand

- Room preparation
  - After beam line layout (Kevin) Progress?
    - Water – Jim Slazak
    - Electrical – Jim Ranson
- Beam dump
  - Jim Walton
    - Data has been communicated to Jim. Will get back to us.
- Instrumentation (Vic)
  - Wires
  - Dipole for energy
  - Faraday cup (longitudinal bunch length and charge)

# Controls

- Mike Kucera will need to be involved.

# Safety

- After beam line layout in test area.

# RFQ reminders

- Schempp is vendor
  - Make sure that the vanes are cleaned! See ISIS email.
    - Some cleaning details supplied by ISIS.
  - Review and verify on site mechanical design and construction (already in contract).
- Add current transformers at beginning and end of RFQ. (Save space in MEBT).
  - Once vendor is finalized, we have to design “ends” of the vacuum structure.